

23. (New) A method of compacting DNA, comprising contacting DNA with a fullerene derivative having 1 to 4 nitrogen-containing hydrophilic side chains or a salt thereof.

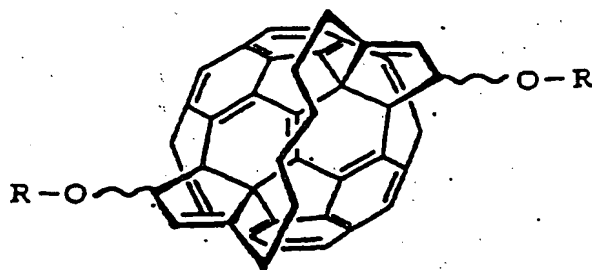
B¹ 24. (New) The method of Claim 23, wherein said nitrogen-containing hydrophilic side chain is a hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent groups each comprising 1 to 10 nitrogen atoms and 2 to 30 carbon atoms, and is bonded to 1 or 2 of the 2 to 8 sp^3 carbon atoms present on the fullerene core, with the proviso that there may exist a cross-linking moiety comprising an alkylene group bridging two or more nitrogen-containing hydrophilic side chains.

25. (New) The method of Claim 23, wherein said fullerene derivative or salt thereof has one or two nitrogen-containing hydrophilic side chains.

26. (New) The method of Claim 23, wherein said fullerene derivative contains a nitrogen-containing hydrophilic side chain which is a hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent groups each comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms, and is bonded to two of the 2 to 8 sp^3 carbon atoms present on the fullerene core, with the proviso that there may exist a cross-linking moiety comprising an alkylene group bridging two nitrogen-containing hydrophilic side chains.

27. (New) The method of Claim 23, wherein said fullerene derivative and said DNA are contacted in a relative amount such that a ratio of molecules of said fullerene compound to base pairs of DNA is within 4:1 to 1:2.

28. (New) The method of Claim 23, wherein fullerene derivative has the following general formula or a salt thereof:



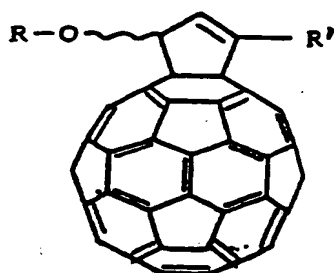
wherein the two Rs may be the same or different and each represents a straight-chain or branched-chain acyl group comprising 1 to 10 nitrogen atoms and 2 to 30 carbon atoms or hydrogen,

with the proviso that the two Rs are not both hydrogen.

29. (New) The method of Claim 28, wherein the two Rs are the same or different and each represents a straight-chain or branched-chain acyl group comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms.

30. (New) The method of Claim 28, wherein the two Rs are the same or different and each represents a [N-(N,N-di(lower)alkylamino)(lower)alkyl-N-(lower)alkyl]amino(lower)alkanoyl group.

31. (New) The method of Claim 23, wherein fullerene derivative has the following general formula or a salt thereof:



wherein R represents a straight-chain or branched-chain acyl group comprising 1 to 10 nitrogen atoms and 2 to 30 carbon atoms and R' represents hydrogen or a lower alkyl group.

32. (New) The method of Claim 31, wherein R represents a straight-chain or branched-chain acyl group comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms.

33. (New) The method of Claim 31, wherein R is an [N-(N,N-di(lower)alkylamino)(lower)alkyl-N-(lower)alkyl]amino(lower)alkanoyl group.

34. (New) A compacted DNA, prepared by a process comprising contacting DNA with a fullerene derivative having 1 to 4 nitrogen-containing hydrophilic side chains or a salt thereof.

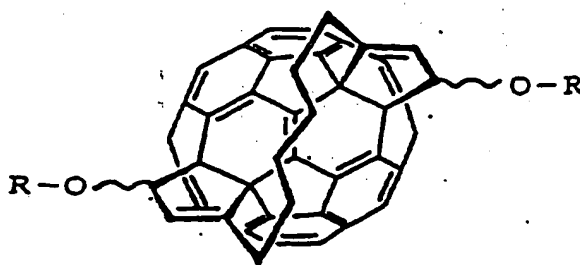
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35. (New) The compacted DNA of Claim 34, wherein said nitrogen-containing hydrophilic side chain is a hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent groups each comprising 1 to 10 nitrogen atoms and 2 to 30 carbon atoms, and is bonded to 1 or 2 of the 2 to 8 sp^3 carbon atoms present on the fullerene core, with the proviso that there may exist a cross-linking moiety comprising an alkylene group bridging two or more nitrogen-containing hydrophilic side chains.

36. (New) The compacted DNA of Claim 34, wherein said fullerene derivative or salt thereof has one or two nitrogen-containing hydrophilic side chains.

37. (New) The compacted DNA of Claim 34, wherein said fullerene derivative contains a nitrogen-containing hydrophilic side chain which is a hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent groups each comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms, and is bonded to two of the 2 to 8 sp^3 carbon atoms present on the fullerene core, with the proviso that there may exist a cross-linking moiety comprising an alkylene group bridging two nitrogen-containing hydrophilic side chains.

38. (New) The compacted DNA of Claim 34, wherein said fullerene derivative and said DNA are contacted in a relative amount such that a ratio of molecules of said fullerene compound to base pairs of DNA is within 4:1 to 1:2.

39. (New) The compacted DNA of Claim 34, wherein said fullerene derivative has the following general formula or a salt thereof:



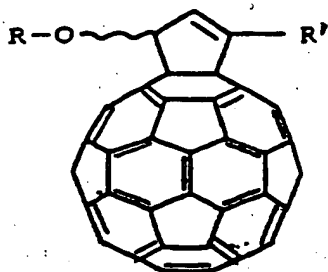
wherein the two Rs may be the same or different and each represents a straight-chain or branched-chain acyl group comprising 1 to 10 nitrogen atoms and 2 to 30 carbon atoms or hydrogen,

with the proviso that the two Rs are not both hydrogen.

40. (New) The compacted DNA of Claim 39, wherein the two Rs are the same or different and each represents a straight-chain or branched-chain acyl group comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms.

41. (New) The compacted DNA of Claim 39, wherein the two Rs are the same or different and each represents a [N-(N,N-di(lower)alkylamino)(lower)alkyl-N-(lower)alkyl]amino(lower)alkanoyl group.

42. (New) The compacted DNA of Claim 34, wherein said fullerene derivative has the following general formula or a salt thereof:

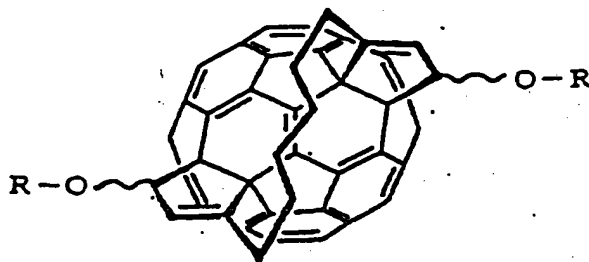


wherein R represents a straight-chain or branched-chain acyl group comprising 1 to 10 nitrogen atoms and 2 to 30 carbon atoms and R' represents hydrogen or a lower alkyl group.

43. (New) The compacted DNA of Claim 42, wherein R represents a straight-chain or branched-chain acyl group comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms.

44. (New) The compacted DNA of Claim 42, wherein R is an [N-(N,N-di(lower)alkylamino)(lower)alkyl-N-(lower)alkyl]amino(lower)alkanoyl group.

45. (New) A fullerene derivative of the following general formula or a salt thereof:

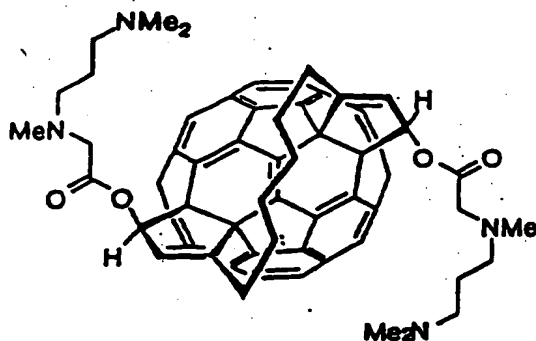


wherein the two Rs may be the same or different and each represents a straight-chain or branched-chain acyl group comprising 1 to 10 nitrogen atoms and 2 to 30 carbon atoms or hydrogen,

with the provisos that:

(1) the two Rs are not both hydrogen;

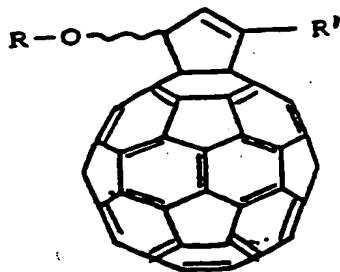
(2) said fullerene derivative does not have the following formula:



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46. (New) The fullerene derivative or salt thereof of Claim 45, wherein the two Rs are the same or different and each represents a straight-chain or branched-chain acyl group comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms.

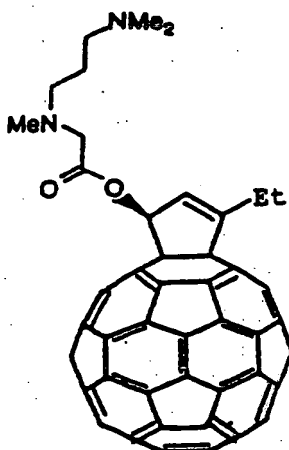
47. (New) The fullerene derivative or salt thereof of Claim 45, wherein the two Rs are the same or different and each represents a [N-(N,N-di(lower)alkylamino)(lower)alkyl-N-(lower)alkyl]amino(lower)alkanoyl group.

48. (New) A fullerene derivative of the following general formula or a salt thereof:



wherein R represents a straight-chain or branched-chain acyl group comprising 1 to 10 nitrogen atoms and 2 to 30 carbon atoms and R' represents hydrogen or a lower alkyl group,

with the proviso that said fullerene derivative does not have the following formula:



49. (New) The fullerene derivative or salt thereof of Claim 48, wherein R represents a straight-chain or branched-chain acyl group comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms.

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50. (New) The fullerene derivative or salt thereof of Claim 48, wherein R is an [N-(N,N-di(lower)alkylamino)(lower)alkyl-N-(lower)alkyl]amino(lower)alkanoyl group.

51. (New) A method of transfection of DNA into cells, comprising contacting DNA with a fullerene derivative having 1 to 4 nitrogen-containing hydrophilic side chains or a salt thereof in the presence of cells.

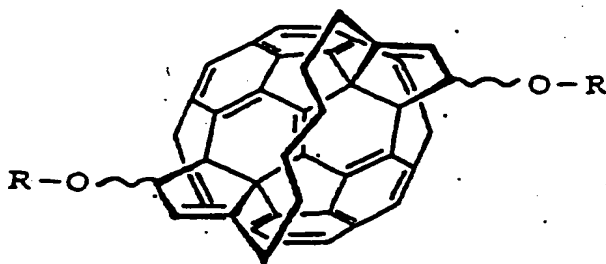
52. (New) The method of Claim 51, wherein said nitrogen-containing hydrophilic side chain is a hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent groups each comprising 1 to 10 nitrogen atoms and 2 to 30 carbon atoms, and is bonded to 1 or 2 of the 2 to 8 sp^3 carbon atoms present on the fullerene core, with the proviso that there may exist a cross-linking moiety comprising an alkylene group bridging two or more nitrogen-containing hydrophilic side chains.

53. (New) The method of Claim 51, wherein said fullerene derivative or salt thereof has one or two nitrogen-containing hydrophilic side chains.

54. (New) The method of Claim 51, wherein said fullerene derivative contains a nitrogen-containing hydrophilic side chain which is a hydrocarbon group which has 1 or 2 straight-chain or branched-chain substituent groups each comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms, and is bonded to two of the 2 to 8 sp^3 carbon atoms present on the fullerene core, with the proviso that there may exist a cross-linking moiety comprising an alkylene group bridging two nitrogen-containing hydrophilic side chains.

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55. (New) The method of Claim 51, wherein said fullerene derivative and said DNA are contacted in a relative amount such that a ratio of molecules of said fullerene compound to base pairs of DNA is within 4:1 to 1:2.

56. (New) The method of Claim 51, wherein fullerene derivative has the following general formula or a salt thereof:



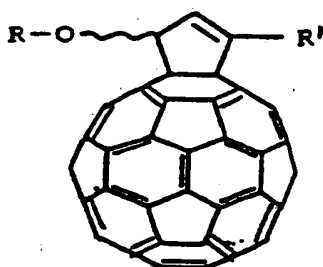
wherein the two Rs may be the same or different and each represents a straight-chain or branched-chain acyl group comprising 1 to 10 nitrogen atoms and 2 to 30 carbon atoms or hydrogen,

with the proviso that the two Rs are not both hydrogen.

57. (New) The method of Claim 56, wherein the two Rs are the same or different and each represents a straight-chain or branched-chain acyl group comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms.

58. (New) The method of Claim 56, wherein the two Rs are the same or different and each represents a [N-(N,N-di(lower)alkylamino)(lower)alkyl-N-(lower)alkyl]amino(lower)alkanoyl group.

59. (New) The method of Claim 51, wherein fullerene derivative has the following general formula or a salt thereof:



wherein R represents a straight-chain or branched-chain acyl group comprising 1 to 10 nitrogen atoms and 2 to 30 carbon atoms and R' represents hydrogen or a lower alkyl group.

60. (New) The method of Claim 59, wherein R represents a straight-chain or branched-chain acyl group comprising 2 to 8 nitrogen atoms and 2 to 20 carbon atoms.

61. (New) The method of Claim 59, wherein R is an [N-(N,N-di(lower)alkylamino)(lower)alkyl-N-(lower)alkyl]amino(lower)alkanoyl group.

SUPPORT FOR THE AMENDMENTS

Applicants have canceled Claims 1-22 and added new Claims 23-61. Support for Claims 23-50 can be found in Claims 1-21, as originally filed. Particular support for Claims 27 and 38 can be found on page 22, lines 18-22, of the specification. Support for Claims 51-